

*Patent Application Serial No. 10/553,624
Response to Office Action of April 30, 2008*

REMARKS

The allowance of claim 6 and its dependent claims is acknowledged with appreciation. Claims 1-5 and 10 remain rejected. In the present response, dependent claim 3 is incorporated into independent claim 1, and the Applicants argue for the subject matter of claim 3 below. Claim 3 is canceled without prejudice to reentry.

In addition to the subject matter of canceled claim 3, claim 1 also recites that the locating nubs protrude downwardly. This feature is supported at page 7, line 4, and is illustrated in various drawing figures.

In response to the outstanding Office Action:

Claims 1-5 and 10 are rejected under 35 U.S.C. §103(a) as being obvious over Bank et al., US 7,151,837, over Wei et al., US 6,289,101. (The previous rejection over Mellow and Hasegawa is withdrawn.) This rejection is respectfully traversed.

The Claimed Locating Nubs Are Not Disclosed. The Applicants' vibration-generating part 4 is provided with a coil 40 and a magnet 42, as shown in Fig. 8. As is described at page 7, lines 3-5, each of the coils 40 fits onto a locating nub 20 that protrudes downwardly from the diaphragm 2. The mounting position of the coils 40, and therefore the acoustic characteristics of the device, are stabilized by this arrangement. This exemplifies the subject matter of amended claim 1. The Examiner asserts that Banks anticipate this feature at col. 7, lines 21-27, reading:

FIG. 4 shows an application of the loudspeaker of FIG. 3. The loudspeaker forms a window panel for a display (108) which is supported on the frame (156) by a flexible front suspension (170) which extends around the periphery of the display. The loudspeaker is supported in the frame (156) by a flexible rear suspension (172) which extends around the periphery of the panel (67).

With respect, no mention of locating nubs is seen here, nor are any nubs seen in the Fig. 4 described by this applied text.

*Patent Application Serial No. 10/553,624
Response to Office Action of April 30, 2008*

Wei. The Examiner relies on Wei for teaching that either a magnet or a coil can be connected to a diaphragm. With respect, no such teaching is seen in Wei, either at col. 2, lines 32-52 as the Examiner asserts (page 3, line 4 of the Action), or anywhere else in this reference.

To the contrary, Wei states that the magnet is "firmly installed to the inner wall of the body 1" (col. 2, line 36), and nowhere mentions any attachment of the magnet to the diaphragm.

Combination. The Examiner cites Bank's teaching that a magnet/coil driver is only 1% efficient (col. 2, lines 1-2) as a reason for modifying Wei. The Applicants respectfully disagree.

Bank not only states that the magnet/coil driver is wasteful of energy, it also states (at col. 2, lines 3-5) that coil-and-magnet drivers are inferior to piezoelectric drivers because the piezoelectric drivers have *high* efficiency.

Wei shows a magnet/coil arrangement in its prior-art Fig. 1 and states (col. 1, lines 13-40) that this arrangement is "not convenient" and is "complicated;" that the volume can't be reduced, which is "a big problem;" and that "the bandwidth is too narrow to generate a clear sound." Wei actually teaches strongly *against* magnet/coil drivers.

Thus, *both* of the applied references teach against magnet/coil drivers.

It is respectfully submitted that it is not predictable that a person of ordinary skill would choose a driver of *low* efficiency, unless there were some specific teaching or reason for such a choice, and no such reason is on record. The teaching of the art is opposite to such a choice, as noted above.

Moreover, Bank uses various resonant frequencies, which implies a narrow bandwidth, but Wei's object is a broad spectrum (col. 1, lines 37-40; Figs. 5-6; col. 3, lines 11-19). Again, this teaches *against* combination.

Patent Application Serial No. 10/553,624
Response to Office Action of April 30, 2008

Interchangeability of a magnet and coil is not disclosed anywhere on record in either one of the references.

Bank. Bank discloses attaching the driver to the edge of the diaphragm at col. 5, line 20, but in general it teaches attaching the driver to a middle portion of the diaphragm (col. 5, lines 3-19). The reason for attaching the driver near the middle is that Bank uses "bending waves" of a "distributed mode loudspeaker" (col. 1, lines 19 and 28). These "bending waves" are defined in US 6,332,029 to Azima et al., which is a patent that Bank incorporates by reference at col. 1, line 20. Bank drives the diaphragm *to resonance*, rather than driving the diaphragm at frequencies *below* its resonant frequencies. The Examiner referred to Bank at col. 2, lines 20-26 and 39-67.

Resonance is more efficiently generated by a driver in the middle. Therefore, Bank's main teaching is contrary to the claimed feature of "a vibration generating part arranged on the peripheral portion of the diaphragm."

Dependent Claims. With respect, the citations to Bank in the rejections of the dependent claims appear to be incorrect. Clarification and/or reconsideration are requested.

Respectfully submitted,

KRATZ, QUINTOS & HANSON, LLP

Nick Bromer

Nick S. Bromer
Attorney for Applicant
Reg. No. 33,478

NSB/lrj

Suite 400
1420 K Street, N.W.
Washington, D.C. 20005
(202) 659-2930

23850

PATENT & TRADEMARK OFFICE

- 7 -